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	DB=PGPB,	USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=Y	ES; OP=ADJ
	L6	L3 and amyloglucosidase	1
	L5	L3 and amylglucosidase	0
	L4	L1 and (crispus or cripus)	1
	L3	L1 and (hexose oxidase or glucose oxidase)	8
	L2	L1 and marine organism	22
	L:1	(anti adj3 fouling) and (enzyme or oxidase)	153

END OF SEARCH HISTORY

Hit List

Clear Generate Collection Print Fwd Refs Bkwd Refs
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Search Results - Record(s) 1 through 22 of 22 returned.

1. Document ID: US 20050013843 A1

L2: Entry 1 of 22

File: PGPB

Jan 20, 2005

PGPUB-DOCUMENT-NUMBER: 20050013843

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050013843 A1

TITLE: Hybrid anti-fouling coating compositions and methods for preventing the

fouling of surfaces subjected to a marine environment

PUBLICATION-DATE: January 20, 2005

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47 Detty, Michael R. Rochester NY US Drake, Michael D. MD US Glendale Tang, Ying Amherst NY US Bright, Frank V. Williamsville NY US

US-CL-CURRENT: 424/426; 106/15.05, 427/421.1, 427/429, 427/430.1

Full Title Citation Front Review Classification Date Reference Sequences Attachments Clai	ms KNNC Draw De
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2. Document ID: US 20040221789 A1

L2: Entry 2 of 22

File: PGPB

Nov 11, 2004

PGPUB-DOCUMENT-NUMBER: 20040221789

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040221789 A1

TITLE: Watercraft storage apparatus and method

PUBLICATION-DATE: November 11, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Nelson, Bruce D. South Haven MN US

US-CL-CURRENT: 114/263

Record List Display Page 2 of 16

Full Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw De

3. Document ID: US 20040175407 A1

L2: Entry 3 of 22

File: PGPB

Sep 9, 2004

PGPUB-DOCUMENT-NUMBER: 20040175407

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040175407 A1

TITLE: Microorganism coating components, coatings, and coated surfaces

PUBLICATION-DATE: September 9, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

McDaniel, C. Steven Austin TX US

US-CL-CURRENT: 424/423; 435/287.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw De

4. Document ID: US 20040109872 A1

L2: Entry 4 of 22 File: PGPB

Jun 10, 2004

PGPUB-DOCUMENT-NUMBER: 20040109872

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040109872 A1

TITLE: Porifera-based therapeutic compositions for treating and preventing skin

diseases

PUBLICATION-DATE: June 10, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Villani, Maria Laguna Niguel CA US

US-CL-CURRENT: 424/195.16; 424/725

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Do

5. Document ID: US 20040019143 A1

L2: Entry 5 of 22 File: PGPB Jan 29, 2004

PGPUB-DOCUMENT-NUMBER: 20040019143

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040019143 A1

Record List Display Page 3 of 16

TITLE: Polymer composites and methods for making and using same

PUBLICATION-DATE: January 29, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Koloski, Timothy S. West Amherst NY US Vargo, Terrence G. Kenmore NY US

US-CL-CURRENT: 524/434

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw De

6. Document ID: US 20040009159 A1

L2: Entry 6 of 22 File: PGPB Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040009159

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040009159 A1

TITLE: Coatings with enhanced microbial performance

PUBLICATION-DATE: January 15, 2004

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Polsenski, Martin J. Jacksonville FL US Leavitt, Richard I. Ponte Vedra Beach FL US

US-CL-CURRENT: 424/93.45

Full Title Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOARC	Draw, De
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7. Document ID: US 20030166237 A1

L2: Entry 7 of 22 File: PGPB Sep 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030166237

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030166237 A1

TITLE: Antifouling paint composition comprising rosin and enzyme

PUBLICATION-DATE: September 4, 2003

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Allermann, Knud Rungsted Kyst DK Schneider, Ib Copenhagen DK Record List Display Page 4 of 16

US-CL-CURRENT: 435/204; 106/16, 435/200, 435/222

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw De

8. Document ID: US 20030087338 A1

L2: Entry 8 of 22

File: PGPB

May 8, 2003

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20030087338

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030087338 A1

TITLE: Adhesive DOPA-containing polymers and related methods of use

PUBLICATION-DATE: May 8, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Messersmith, Phillip B.	Clarendon Hills	IL	US	
Huang, Kui	Evanston	IL	US	
Lee, Bruce P.	Evanston	IL	US	
Dalsin, Jeffrey	Chicago	IL	US	
Hu, Bi-Huang	Chicago	IL	US	
Friedstat, Jonathan	Wilmette	IL	US	

US-CL-CURRENT: 435/68.1; 527/200

	Full	Title	Citation Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Drawi De
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		9.	Document ID:	US 20	020142022	A 1						

File: PGPB

PGPUB-DOCUMENT-NUMBER: 20020142022

PGPUB-FILING-TYPE: new

L2: Entry 9 of 22

DOCUMENT-IDENTIFIER: US 20020142022 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	

Record List Display Page 5 of 16

Brady, Robert F.

Gaithersburg

MD

US

US-CL-CURRENT: 424/405; 424/417, 424/450

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims RMC Draw De

10. Document ID: US 20020106361 A1

L2: Entry 10 of 22

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Poulsen, Charlotte Horsmans Brabrand DK Kragh, Karsten Matthias Viby J, DK

US-CL-CURRENT: <u>424/94.4</u>; <u>504/117</u>, <u>523/105</u>

Full: | Title: | Citation | Front: | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw De

11. Document ID: US 20010051274 A1

L2: Entry 11 of 22 File: PGPB Dec 13, 2001

PGPUB-DOCUMENT-NUMBER: 20010051274

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010051274 A1

TITLE: Antifouling compounds and uses thereof.

PUBLICATION-DATE: December 13, 2001

INVENTOR-INFORMATION:

NAME . CITY STATE COUNTRY RULE-47

Alberte, Randall S. Falmouth ME US

Zimmerman, Richard C. Pacific Grove CA US

US-CL-CURRENT: <u>428/411.1</u>; <u>424/411</u>, <u>523/122</u>

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims RMC Draw De

Record List Display Page 6 of 16

12. Document ID: US 20010026802 A1

L2: Entry 12 of 22 File: PGPB Oct 4, 2001

PGPUB-DOCUMENT-NUMBER: 20010026802

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010026802 A1

TITLE: Method of controlled release and controlled release microstructures

PUBLICATION-DATE: October 4, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Price, Ronald R.	Stevensville	MD	US	
Schnur, Joel M.	Burke	VA	US	
Schoen, Paul E.	Alexandria	VA	US	
Testoff, Mary	Greenbelt	MD	US	
Georger, Jacque H. JR.	Springfield	VA	US	
Rudolph, Alan	Bowie	MD	US	
Brady, Robert F.	Gaithersburg	MD	US	

US-CL-CURRENT: 424/405; 424/417, 424/450

Full	Title	Citation Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawt De	
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13. Document ID: US 6855513 B1

L2: Entry 13 of 22 File: USPT Feb 15, 2005

US-PAT-NO: 6855513

DOCUMENT-IDENTIFIER: US 6855513 B1

TITLE: Quorum sensing signaling in bacteria

DATE-ISSUED: February 15, 2005

INVENTOR-INFORMATION:

STATE ZIP CODE NAME CITY COUNTRY Whiteley; Marvin Coralville IΑ Lee; Kimberly M. Iowa City ΙA Greenberg; E. Peter Iowa City IΑ Muh; Ute Iowa City ΙA

US-CL-CURRENT: <u>435/34</u>; <u>424/170.1</u>, <u>424/183.1</u>, <u>424/93.3</u>, <u>435/170</u>, <u>435/173.8</u>, <u>435/218</u>, <u>435/220</u>, <u>435/252.34</u>, <u>435/253.3</u>, <u>435/29</u>, <u>435/32</u>, <u>435/340</u>, <u>435/35</u>, <u>435/4</u>, <u>435/440</u>, <u>435/463</u>, <u>435/465</u>, <u>435/480</u>, <u>435/488</u>, <u>435/5</u>, <u>435/69.8</u>, <u>435/7.2</u>, <u>435/7.32</u>, <u>435/7.4</u>, <u>435/7.6</u>, <u>435/7.8</u>, <u>435/7.9</u>, <u>435/91.4</u>, <u>530/389.5</u>

ABSTRACT:

Record List Display Page 7 of 16

The invention provides methods for identifying a modulator of quorum sensing signaling in bacteria, and for identifying a quorum sensing controlled gene in bacteria. In addition, the invention provides quorum sensing controlled genetic loci in Pseudomas aeruginosa. Novel indicator strains and vectors for engineering the strains for use in the method of the invention are also provided.

33 Claims, 13 Drawing figures Exemplary Claim Number: 1
Number of Drawing Sheets: 13

14. Document ID: US 6608129 B1

L2: Entry 14 of 22

File: USPT

Aug 19, 2003

US-PAT-NO: 6608129

DOCUMENT-IDENTIFIER: US 6608129 B1

TITLE: Polymer composites and methods for making and using same

DATE-ISSUED: August 19, 2003

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Koloski; Timothy S. West Amherst NY

Vargo; Terrence G. Kenmore NY

US-CL-CURRENT: <u>524</u>/<u>403</u>; <u>524</u>/<u>430</u>, <u>524</u>/<u>431</u>, <u>524</u>/<u>433</u>, <u>524</u>/<u>439</u>, <u>524</u>/<u>502</u>, <u>524</u>/<u>515</u>, 524/520, 524/546

ABSTRACT:

Composites which include a polymer matrix having natural free volume therein and an inorganic or organic material disposed in the natural free volume of the polymer matrix are disclosed. In addition, methods for making a composite are described. A polymer matrix having free volume therein is provided. The free volume is evacuated, and inorganic or organic molecules are infused into the evacuated free volume of the polymer matrix. The inorganic or organic molecules can then be polymerized under conditions effective to cause the polymerized inorganic or organic molecules to assemble into macromolecular networks. Alternatively, where the polymer matrix contains a functionality, the inorganic or organic molecules can be treated under conditions effective to cause the inorganic or organic molecules to interact with the polymer matrix's functionality. Use of the disclosed composites as photoradiation shields and filters, electromagnetic radiation shields and filters, antistatic layers, heterogeneous catalysts, conducting electrodes, materials having flame and heat retardant properties, components in the construction of electrolytic cells, fuel cells, and optoelectronic devices, and antifouling coatings is also described.

25 Claims, 4 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 3 Record List Display Page 8 of 16

15. Document ID: US 6410622 B1

L2: Entry 15 of 22

File: USPT

Jun 25, 2002

Aug 28, 2001

US-PAT-NO: 6410622

DOCUMENT-IDENTIFIER: US 6410622 B1

TITLE: Method of preventing fouling organisms in marine environments and polymer-

bound nitric oxide/nitric oxide-releasing compositions usable therefor

DATE-ISSUED: June 25, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Endres; Gregory W. Saline MI 48176

US-CL-CURRENT: 524/189; 523/122, 525/360, 525/376, 525/420, 525/437, 525/453,

<u>525/454</u>, <u>527/312</u>

ABSTRACT:

A method of preventing fouling organisms in marine environments comprises the step of introducing into the marine environment in a predetermined form and in a sufficient amount an antifouling composition having as its effective ingredient a nitric oxide-releasing functional group of the diazeniumdiolate structure: ##STR1##

whereupon nitric oxide is controllably released into the marine environment to prevent at least one of the fouling organisms' propagation, ability to attach, and ability to function.

An antifouling composition consists essentially of an antifouling-acceptable carrier and a coprecipitation product of polylactide/glycolide and diethylenetriamine having the formula H.sub.3 N.sup.+ CH.sub.2 CH.sub.2 N(N.sub.2 O.sub.2).sup.-1 CH.sub.2 CH.sub.2 NH.sub.2, wherein diethylenetriamine contains a nitric oxide-releasing functional group.

20 Claims, 0 Drawing figures Exemplary Claim Number: 1

Full	Title	Citation Front Review Classification Date Reference
	16.	Document ID: US 6280759 B1

File: USPT

US-PAT-NO: 6280759

L2: Entry 16 of 22

DOCUMENT-IDENTIFIER: US 6280759 B1

Record List Display Page 9 of 16

TITLE: Method of controlled release and controlled release microstructures

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD	21666	
Schnur; Joel M.	Burke	VA .	22015	
Schoen; Paul E.	Alexandria	VA	22304	
Testoff; Mary	Greenbelt	MD	20770	
Georger, Jr.; Jacque H.	Springfield	AV	22153	
Rudolph; Alan	Bowie	MD	20716	
Brady; Robert F.	Gaithersburg	MD	20878	

US-CL-CURRENT: <u>424/408</u>; <u>424/405</u>, <u>424/406</u>, <u>424/411</u>, <u>424/417</u>, <u>424/418</u>, <u>424/419</u>, 424/420, 424/499, <u>523/122</u>

ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

14 Claims, 5 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 5

Full Title Citation Front	Review Classification Date	Reference	Claims KWC Draw De

17. Document ID: US 5492696 A

L2: Entry 17 of 22 File: USPT Feb 20, 1996

US-PAT-NO: 5492696

DOCUMENT-IDENTIFIER: US 5492696 A

TITLE: Controlled release microstructures

DATE-ISSUED: February 20, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Price; Ronald R.	Stevensville	MD		
Schnur; Joel M.	Burke	.VA		
Schoen; Paul E.	Alexandria	VA		
Testoff; Mary	Greenbelt .	MD		
Georger, Jr.; Jacque H.	Springfield	VA		

Record List Display Page 10 of 16

Rudolph; Alan
Brady; Robert F.

Bowie MD

Gaithersburg MI

US-CL-CURRENT: 424/417; 264/4.4, 264/4.7, 424/405, 424/406, 424/419

Full Title Citation Front Review Classification Date Reference

ABSTRACT:

Tubules which contain an active agent in their lumen and compositions containing such microtubules are effective for providing a slow, controlled release of the active agent. Such microtubules are useful in the production of coating compositions for the protection of surfaces coming into contact with water, adhesive resins for the production of laminated wood products, and devices for dispensing pesticides.

3 Claims, 5 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 5

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18. Document ID: US 4594965 A

L2: Entry 18 of 22

File: USPT

Jun 17, 1986

Claims KWC Draw De

US-PAT-NO: 4594965

DOCUMENT-IDENTIFIER: US 4594965 A

TITLE: Symbiotic aqua-culture

DATE-ISSUED: June 17, 1986

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Asher, Jr.; Donald F. Annapolis MD 21403

Munz, deceased; Otto J. late of Arlington VA Munz, Executrix; by Gerta H. Arlington VA

US-CL-CURRENT: <u>119/239</u>; <u>119/200</u>, <u>119/242</u>

ABSTRACT:

A symbiotic aqua-culture system includes a barrier fence surrounding a protected body of water in which is extended a conduit having a plurality of tubes therein and which is coaxial with a tubular screen. An electrode in the form of a helically wound wire on the conduit coacts with the tubular screen, which comprises a second electrode, to form an electrical field which attracts marine life and stimulates the growth thereof. The barrier fence may also be constructed to produce an electrical field to inhibit or kill undesired <u>marine organisms</u> attempting to pass through the fence. The tubes within the conduit are connected to sources of various materials, such as nutrients, algaecide, heat, etc., and valves are connected with the tubes to control flow therethrough. Orifices connect the tubes with the surface of the conduit along its length to supply the materials as desired. The method of symbiotic mari-culture using the structure is also disclosed.

Record List Display Page 11 of 16

10 Claims, 7 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 2

Full Title Citation Front Review Classification Date Reference Claims KMC Draw D

19. Document ID: US 4297137 A

L2: Entry 19 of 22 File: USPT Oct 27, 1981

US-PAT-NO: 4297137

DOCUMENT-IDENTIFIER: US 4297137 A

TITLE: Anti-fouling paint

DATE-ISSUED: October 27, 1981

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Sachetto; Jean-Pierre Saint-Julien-en-Genevois FR Cuccolo; Sergio Geneva CH

US-CL-CURRENT: <u>514/493</u>; <u>106/156.1</u>, <u>106/156.23</u>, <u>106/157.8</u>, <u>106/163.01</u>, <u>106/203.1</u>, <u>106/203.3</u>, <u>106/204.01</u>, <u>424/635</u>, <u>424/638</u>

ABSTRACT:

The invention relates to <u>anti-fouling</u> paints and is concerned with <u>anti-fouling</u> paints developed for inhibiting the fixation of <u>marine organisms</u> on structures which are immersed in sea water, the paints including at least one toxic substance uniformly incorporated into a discontinuous solid matrix which is insoluble in sea water and is dispersed in the paint, the matrix being at least partially formed from at least one substance which becomes soluble in sea water under the action of <u>enzymes</u> liberated by the <u>marine organisms</u> to be inhibited and/or by the bacterial film in contact with the <u>surface</u> of the paint.

The paints according to the invention provide an effective life which is much longer than that of the known anti-fouling paints.

The invention relates to an <u>anti-fouling</u> paint containing at least one toxic substance.

5 Claims, 0 Drawing figures Exemplary Claim Number: 1

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1	Full	Citation	Front	Reniem	Classification	Date	Reference		Claims	KWIC	Draw De
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20. Document ID: AU 777162 B2, WO 200075293 A2, AU 200050978 A, BR 200010932 A, NO 200105831 A, KR 2002010153 A, US 20020106361 A1, CN 1364185 A, EP 1282669 A2, JP 2003525312 W, MX 2001012448 A1, NZ 515111 A

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L2: Entry 20 of 22 File: DWPI Oct 7, 2004

DERWENT-ACC-NO: 2001-112148

DERWENT-WEEK: 200480

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TITLE: New <u>anti-fouling</u> composition, useful as a coating for treating different surfaces, e.g. outdoor woodwork, external surface of a central heating system, or a hull of a marine vessel

INVENTOR: KRAGH, K M; POULSEN, C H

PRIORITY-DATA: 1999GB-0013050 (June 4, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 777162 B2	October 7, 2004		000	C12N009/00
WO 200075293 A2	December 14, 2000	E	036	C12N009/00
AU 200050978 A	December 28, 2000		000	
BR 200010932 A	February 26, 2002		000	C12N009/00
NO 200105831 A	January 31, 2002		000	C12N000/00
KR 2002010153 A	February 2, 2002	•	000	C12N009/00
US 20020106361 A1	August 8, 2002		000	A01N063/00
CN 1364185 A	August 14, 2002		000	C09D005/16
EP 1282669 A2	February 12, 2003	E	000	C09D005/16
JP 2003525312 W	August 26, 2003		042	C09K003/00
MX 2001012448 A1	June 1, 2002 .		000	C12N009/00
NZ 515111 A	February 27, 2004		000	C12N009/00

INT-CL (IPC): A01 N 63/00; C02 F 1/00; C02 F 1/50; C08 L 89/00; C09 D 5/16; C09 D 7/12; C09 D 201/00; C09 K 3/00; C12 N 0/00; C12 N 9/00; C12 N 9/04; C12 N 9/34

ABSTRACTED-PUB-NO: US20020106361A

BASIC-ABSTRACT:

NOVELTY - A new <u>anti-fouling</u> composition comprises a surface coating material, an <u>enzyme</u> obtained or obtainable from a <u>marine organism</u> and a substrate for the <u>enzyme</u>, and/or a precursor <u>enzyme</u> and a precursor substrate.

DETAILED DESCRIPTION - A new <u>anti-fouling</u> composition comprises a surface coating material, an <u>enzyme</u> obtained or obtainable from a <u>marine organism</u> and a substrate for the <u>enzyme</u>, and/or a precursor <u>enzyme</u> and a precursor substrate. The precursor <u>enzyme</u> and the precursor substrate are selected so that a substrate for the <u>enzyme</u> is generated by action of the precursor <u>enzyme</u> on the precursor substrate. The <u>enzyme</u> and the substrate are selected so that an anti-foulant compound is generated by action of the <u>enzyme</u> on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an anti-fouling compound from a surface coating

Record List Display Page 13 of 16

comprising incorporating in a surface coating the anti-fouling composition above.

USE - The <u>anti-fouling</u> composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an <u>anti-fouling</u> agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

ABSTRACTED-PUB-NO:

WO 200075293A EQUIVALENT-ABSTRACTS:

NOVELTY - A new <u>anti-fouling</u> composition comprises a surface coating material, an <u>enzyme</u> obtained or obtainable from a <u>marine organism</u> and a substrate for the <u>enzyme</u>, and/or a precursor <u>enzyme</u> and a precursor substrate.

DETAILED DESCRIPTION - A new <u>anti-fouling</u> composition comprises a surface coating material, an <u>enzyme</u> obtained or obtainable from a <u>marine organism</u> and a substrate for the <u>enzyme</u>, and/or a precursor <u>enzyme</u> and a precursor substrate. The precursor <u>enzyme</u> and the precursor substrate are selected so that a substrate for the <u>enzyme</u> is generated by action of the precursor <u>enzyme</u> on the precursor substrate. The <u>enzyme</u> and the substrate are selected so that an anti-foulant compound is generated by action of the <u>enzyme</u> on the substrate.

INDEPENDENT CLAIMS are also included for the following:

- (1) a coating consisting of the anti-fouling composition;
- (2) a marine anti-foul consisting of the composition; and
- (3) a method for releasing an <u>anti-fouling</u> compound from a surface coating comprising incorporating in a surface coating the <u>anti-fouling</u> composition above.

USE - The <u>anti-fouling</u> composition is useful as a coating formulated for treating a surface, e.g. outdoor wood work, external surface of a central heating system, or a hull of a marine vessel (claimed). It is also useful as an <u>anti-fouling</u> agent for marine structures exposed to seawater flora and fauna.

ADVANTAGE - The use of tributyl tin as marine anti-fouls has led to the pollution of surrounding water due to leaching which can cause the degradation of mussel and shell organisms. The use of the present anti-fouling composition is safer for the environment. It also has long term effectiveness in harsh environment, e.g. marine environment. It requires less substrate and less enzyme than prior art systems to provide a given anti-microbial effect. Furthermore, it has improved salt tolerance, which leads to further improved activity in marine environments, and is resistant to degradation by fouling.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KOMC	Drawi De

21. Document ID: GB 2306473 A, GB 2306473 B, JP 09118842 A, JP 09118844 A, JP

Record List Display Page 14 of 16

09124570 A, US 5770188 A

L2: Entry 21 of 22 File: DWPI May 7, 1997

DERWENT-ACC-NO: 1997-229317

DERWENT-WEEK: 199902

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TITLE: Glucoxide derivatives for enzyme modification - are useful for producing a lipid-coated enzyme in antifouling paint compositions

INVENTOR: HAMADE, R; OKAHATA, Y ; YAMAMORI, N

PRIORITY-DATA: 1995JP-0278722 (October 26, 1995), 1995JP-0278709 (October 26,

1995), 1995JP-0278718 (October 26, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
GB 2306473 A	May 7, 1997		029	C07C235/06
GB 2306473 B	December 23, 1998		000	C07C235/06
JP 09118842 A	May 6, 1997		006	C09D005/14
JP 09118844 A	May 6, 1997		005	C09D005/16
JP 09124570 A	May 13, 1997		004	C07C235/06
<u>US 5770188 A</u>	June 23, 1998		000	A61K031/74

INT-CL (IPC): A61 K 31/74; C07 C 235/06; C09 D 5/14; C09 D 5/16; C09 D 7/12; C09 D 101/00; C09 D 167/00; C12 N 9/00

ABSTRACTED-PUB-NO: GB 2306473A

BASIC-ABSTRACT:

Glucoxide derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated $\underline{\text{enzymes}}$ in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of $\underline{\text{marine}}$ $\underline{\text{organisms}}$ can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

ABSTRACTED-PUB-NO:

GB 2306473B EQUIVALENT-ABSTRACTS:

Glucoxide derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated <u>enzymes</u> in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of <u>marine</u> <u>organisms</u> can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is enzyme-susceptible and can be degraded by the lipid-coated enzyme, to form a self-polishing antifouling composition.

US 5770188A

Glucoxide derivatives for enzyme modification of formula (I) are new. R1, R2 = 6-20C hydrocarbon. Also claimed are: (1) a lipid-coated enzyme coated with (I) for enzyme modification; (2) production of lipid-coated enzymes comprising dissolving (I) in hydrophilic solvent and adding this solution dropwise into a buffer solution containing an enzyme; and (3) an anti-fouling paint composition comprising a lipid stable enzyme, stable in organic solvents as a result of coating with a lipid having 6-30C and a paint resin.

USE - (I) is useful for producing lipid-coated <u>enzymes</u> in antifouling paint compositions. Proteins and polysaccharides involved in the attachment of <u>marine</u> <u>organisms</u> can be degraded. Cell walls of attaching organisms may also be degraded.

ADVANTAGE - The paint resin used is $\underline{\text{enzyme}}$ -susceptible and can be degraded by the lipid-coated $\underline{\text{enzyme}}$, to form a self-polishing antifouling composition.

Full Title	Citation Front F	Review Classification	Date Reference		Claims KMC Draw De
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22.	Document ID:	US 2855358 A			
L2: Entry	22 of 22		File:	USOC	Oct 7, 1958

US-PAT-NO: 2855358

DOCUMENT-IDENTIFIER: US 2855358 A

TITLE: Galvanic anode

DATE-ISSUED: October 7, 1958

INVENTOR-NAME: BURKE DOUGLAS

US-CL-CURRENT: 204/196.19; 204/196.2, 204/290.05

Full	Title Citatio	n Front	Review	Classification	Date	Reference			Claims	KWIC	Draw, De
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Search Results - Record(s) 1 through 8 of 8 returned.

1. Document ID: US 20030185870 A1

L3: Entry 1 of 8 File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030185870

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030185870 A1

TITLE: Interfacial biomaterials

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

COUNTRY RULE-47 NAME CITY STATE Grinstaff, Mark W. NC US Durham Kenan, Daniel J. Chapel Hill NC US Walsh, Elisabeth B. Durham NC US Arlington VA US Middleton, Crystan

US-CL-CURRENT: 424/423; 530/326

Full Title Citation Fr	ant Pavious	Classification	Date	Determen	Semiences	Attachmente	Cinime 154	ASSET - Durant Dr.
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2. Document ID: US 20020106361 A1

L3: Entry 2 of 8 File: PGPB Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Poulsen, Charlotte Horsmans Brabrand DK Kragh, Karsten Matthias Viby J, DK

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Record List Display Page 2 of 6

Full Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Dr

3. Document ID: US 6291582 B1

L3: Entry 3 of 8

File: USPT

Sep 18, 2001

US-PAT-NO: 6291582

DOCUMENT-IDENTIFIER: US 6291582 B1

** See image for Certificate of Correction **

TITLE: Polymer-protein composites and methods for their preparation and use

DATE-ISSUED: September 18, 2001

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dordick; Jonathan S. Schenectady NY Wang; Ping Akron OH Sergeeva; Maria Vladimir San Diego CA Novick; Scott Joel Iowa City IA

US-CL-CURRENT: <u>525/54.1</u>; <u>435/177</u>, <u>435/180</u>, <u>435/181</u>, <u>435/182</u>, <u>527/201</u>, <u>527/202</u>, <u>527/203</u>, <u>530/402</u>, <u>530/403</u>, <u>530/812</u>, <u>530/815</u>, <u>530/816</u>, <u>530/817</u>

ABSTRACT:

A method of preparing a polymer-protein composite based upon placing a protein in solution in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

28 Claims, 12 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 12

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Full	Title	Citation	Front	Provious	Classification	Frata	Poterones	100000000000000000000000000000000000000	Claims	KWAC	Drawi De
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4. Document ID: US 5965305 A

L3: Entry 4 of 8

File: USPT

Oct 12, 1999

US-PAT-NO: 5965305

DOCUMENT-IDENTIFIER: US 5965305 A

TITLE: Method for surface modification to create regions resistant to adsorption of

biomolecules

DATE-ISSUED: October 12, 1999

INVENTOR-INFORMATION:

Record List Display Page 3 of 6

DC

COUNTRY CITY STATE ZIP CODE NAME Ligler; Frances S. Potomac MD Bhatia; Suresh VA Burke Shriver-Lake; Lisa C. Silver Spring MD Georger; Jacque Springfield VA Calvert; Jeff Burke VA

Washington

US-CL-CURRENT: 430/17; 430/269, 430/271.1

ABSTRACT:

Dulcey; Charles

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

12 Claims, 4 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 2

Full Title	Citation Fron	t Review	Classification	Date	Reference	Claims	KWIC	Draw, De

5. Document ID: US 5914367 A

L3: Entry 5 of 8

File: USPT

Jun 22, 1999

US-PAT-NO: 5914367

DOCUMENT-IDENTIFIER: US 5914367 A

** See image for <u>Certificate of Correction</u> **

TITLE: Polymer protein composites and methods for their preparation and use

DATE-ISSUED: June 22, 1999

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY Dordick; Jonathan S. Iowa City IA Wang; Ping Knoxville TN Sergeeva; Maria Vladimir Tiffin ΙA Novick; Scott Joel Iowa City

US-CL-CURRENT: <u>525/54.1</u>; <u>527/201</u>, <u>527/202</u>, <u>527/203</u>

ABSTRACT:

A method of preparing a polymer-protein composite including polymerizing a monomer in the presence of a protein dissolved in an organic phase via the ion-pairing of the protein with a surfactant. The polymer-protein composites are useful, for

Record List Display Page 4 of 6

example, as highly active and stable catalysts, in for example, paints and coatings, as well as in medical application.

23 Claims, 9 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 9

6. Document ID: US 5540828 A

L3: Entry 6 of 8

File: USPT

Jul 30, 1996

US-PAT-NO: 5540828

DOCUMENT-IDENTIFIER: US 5540828 A

TITLE: Method for making electrochemical sensors and biosensors having a polymer

modified surface

DATE-ISSUED: July 30, 1996

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Yacynych; Alexander East Brunswick NJ 08816

US-CL-CURRENT: 205/198; 204/403.11, 204/403.14, 204/415, 204/418, 205/317,

<u>422/82.03</u>, <u>435/287.2</u>, <u>435/287.9</u>, <u>435/817</u>

ABSTRACT:

A method for making a sensing element for use in a sensor or biosensor that amperometrically measures the concentration of an analyte in a liquid, includes the following sequential steps: a) obtaining an electrode; b) immersing the electrode in a solution of monomer that is capable of being electropolymerized into an electrically insulating polymer; c) flowing an electric current from a cathode through the solution to the electrode at a voltage and amperage sufficient to cause the monomer to polymerize on the surface of the electrode, thereby yielding an electrode coated with an adherent layer of electrically insulating polymer; and e) impregnating the polymeric coating on the surface with a sensing agent that is capable, when contacted by a specific analyte in a chemical or biological liquid, of generating an electroactive molecule that can be detected amperometrically.

19 Claims, 24 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 24

Full Title	Citation Fr	ront Review	Classification	Date	Reference		Claims	KWC	Drame De
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7. Document ID: US 5391463 A

L3: Entry 7 of 8 File: USPT Feb 21, 1995

Record List Display Page 5 of 6

US-PAT-NO: 5391463

DOCUMENT-IDENTIFIER: US 5391463 A

TITLE: Surface modification to create regions resistant to adsorption of

biomolecules

DATE-ISSUED: February 21, 1995

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY MD Ligler; Frances S. Potomac Bhatia; Suresh Burke VA MD Shriver-Lake; Lisa C. Silver Spring Georger; Jacque Springfield VA Calvert; Jeff Burke VA DC Dulcey; Charles Washington

US-CL-CURRENT: 430/272.1; 427/553, 430/271.1, 430/326, 430/927, 435/176, 435/177, 435/181, 436/525, 436/527, 436/528, 436/905

ABSTRACT:

Irradiating, with ultraviolet light, surfaces which contain thiol groups, epoxy groups, or vicinal diol groups, results in surfaces which exhibit a reduced adsorption of biomolecules. In the case of surfaces having thiol groups such irradiation also results in a reduced capacity for the bonding of heterobifunctional crosslinking reagents. Such irradiation may be carried out in a patternwise fashion to obtain patterned surfaces.

10 Claims, 4 Drawing figures Exemplary Claim Number: 1,6 Number of Drawing Sheets: 2

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Full Title Citation Front	Review Classification Dat	e Reference	Claims KMC Draw De
"			

Feb 15, 1994

8. Document ID: US 5286364 A

L3: Entry 8 of 8 File: USPT

US-PAT-NO: 5286364

DOCUMENT-IDENTIFIER: US 5286364 A

TITLE: Surface-modified electochemical biosensor

DATE-ISSUED: February 15, 1994

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Yacynych; Alexander M. East Brunswick NJ Piznik; Sylvia S. Jackson NJ Reynolds; Eugene R. Highland Park NJ Record List Display Page 6 of 6

Geise; Robert J.

Piscataway

NJ

US-CL-CURRENT: 205/83; 204/403.11, 204/418, 205/198, 205/317, 435/817

ABSTRACT:

An electrode for a biosensor (e.g., a glucose biosensor) has a layer of an electrically insulating polymer formed in situ on its operating surface by electropolymerization. For example, a diaminobenzene and a dihydroxybenzene (e.g., 1,3-diaminobenzene and resorcinol) are copolymerized on the electrode's surface by immersing the electrode in a circulating dilute solution of the monomers in deaerated phosphate buffer, and applying a small, continuously cycling voltage between that electrode and another electrode (e.g., from 0.00 V to 0.80 V) until current flow between the electrodes decreases to a minimum. Because the polymer is electrically insulating, polymerization ceases while the polymer layer is still very thin (e.g., 10 nm). An analyte sensing agent, e.g., an enzyme such as immobilized glucose oxidase, is imbedded in the polymer, but with a number of its analyte recognition sites unblocked. The polymer layer shields the electrode surface from interferrents and fouling agents such as uric acid and proteins, but it is sufficiently porous to permit smaller electroactive molecules (e.g., hydrogen peroxide) generated through contact of the enzyme with the analyte molecules to diffuse through to the electrode surface. Preferably a ferrocene compound (e.g., alpha-hydroxy-ethylferrocene or 1,1'-dimethylferrocene), which functions as an electron mediator, is applied to the polymer film, and held there by adsorption.

11 Claims, 24 Drawing figures Exemplary Claim Number: 1 Number of Drawing Sheets: 24

Full	Title Citation	Front	Review	Classification	Date	Reference			Claim	s Killi	C Drawe D
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Search Results - Record(s) 1 through 1 of 1 returned.

1. Document ID: US 20020106361 A1

L4: Entry 1 of 1 File: PGPB Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Poulsen, Charlotte Horsmans Brabrand DK Kragh, Karsten Matthias Viby J, DK

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Full T	itle Citatio	an Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	IOMC	Drawe Dr
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Search Results - Record(s) 1 through 1 of 1 returned.

1. Document ID: US 20020106361 A1

L4: Entry 1 of 1

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020106361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020106361 A1

TITLE: Composition

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE

RULE-47

Poulsen, Charlotte Horsmans

Brabrand

DK

COUNTRY

Kragh, Karsten Matthias

Viby J,

DK

US-CL-CURRENT: 424/94.4; 504/117, 523/105

Full T	itle Citation	Front	Review C	lassification	Date	Reference	Seque	ences	Attachma	nts Claim	s KOMI	C Drava Di
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